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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/282,848	03/31/1999	JOHN ERIC ARTHUR	49617-P020CP	9190

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EXAMINER

MICHALSKI, JUSTIN I

ART UNIT PAPER NUMBER

2644

DATE MAILED: 02/09/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/282,848

Applicant(s)

ARTHUR, JOHN ERIC

Examiner

Justin Michalski

Art Unit

2644

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 September 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4,6-8,13,14,17,18,20,21,23-27,39 and 40 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4,6-8,13,14,17,18,20,21,23-27 and 39 is/are rejected.
- 7) ☒ Claim(s) 40 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicant's arguments with respect to claims 1-4, 6-8, 13, 14, 17, 18, 20, 21, 23-27, 39 and 40 have been considered but are moot in view of the new ground(s) of rejection. In addition, applicant's remarks are not persuasive as independent claim 1 was amended to include the limitations of previously rejected dependent claim 5.

Specification

2. The disclosure is objected to because of the following informalities: The disclosure refers to "Q1 filters" described in US Patents 5,105,462 and 5,208,860. US Patents 5,105,462 and 5,208,860 have been searched and no reference to a "Q1 filter" has been found.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claim 18 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Claim 18 claims an eleventh summer and twelfth summer in lines 2 and 4 respectively. Figure 1 discloses only ten summers (10,11, and 18-25) and Figure 3 discloses only eight summers (41-48).

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1, 2, and 6-8 are rejected under 35 U.S.C. 102(b) as being anticipated by Griesinger (US Patent 5,796,844).

Regarding Claim 1, Griesinger discloses a system for processing a stereo input signal which includes center information, matrix encoded surround information, and stereo information, the system comprising: first circuit for providing a center output which includes center monaural information (output of 162, Fig. 4), wherein the first circuit comprises a first summer which combines one channel of the stereo input signal with the other channel of the stereo input signal to form a center combined signal which has the surround information removed (162); second circuit for providing a surround output from the matrix encoded surround information which includes surround monaural information (output 166 and 168); and third circuit for providing an expanded stereo output (output of 160 and 164); wherein the first circuit, the second circuit, and the third

circuit process the stereo input signal to produce first and second output signals (output of 44 and 46 Fig. 7).

Regarding Claim 2, Griesinger further discloses the first and second output signals are respectively delivered to first and second speakers (It is inherent output signals 44 and 46 will be delivered to first and second speakers to provide an audio output).

Regarding Claim 6, Griesinger further discloses a multiplier which modifies the center combed signal (222).

Regarding Claim 7, Griesinger further discloses a second summer which combines the center combined signal with one channel of the stereo input signal to form the first output signal (250); and a third summer which combines the center combined signal with the other channel of the stereo input signal to form the second output signal (252).

Regarding Claim 8, Griesinger further discloses a fourth summer (126) which combines one channel of the stereo input signal with an inverse of the other channel of the stereo input signal to form a surround combined signal which has the center information removed.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 3, 4, 13, 14, 17, 20, 21, 23, 24-27, and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Griesinger in view of Iida et al. ("Iida") (US Patent 5,579,396).

Regarding Claim 3, Griesinger discloses a system as stated above of claim 1 above but does not disclose a center, surround, and stereo image. Iida also discloses converting five channels down to two channels (Fig. 6) in order to produce a center (Fig. 2, SP5), surround (SP 3 and SP 4), and stereo images (SP1 and SP2). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include center, surround, and stereo images to realize sound reproduction in such a way the reproduced sound can surround a listener (Col. 2, lines 32-37) for a higher quality audio output.

Regarding Claim 4, Iida further discloses the phantom center sound image appears to a listener of the system to be located between a pair of speakers; each virtual surround image appears to the listener to be located at a position which forms an obtuse angle with said pair of speakers; and each stereo sound image appears to be located outside the physical limits of each speaker (Fig. 2).

Regarding Claim 13, Griesinger discloses a system as stated above of claim 1 above but does not disclose combining a stereo signal with an inverse of another and adjusting amplitude and phase of the difference signal. Iida also discloses converting five channels down to two channels (Fig. 6) by a circuit for combining one channel of the stereo signal with an inverse of the other channel of the stereo signal to form a

difference signal (Fig. 6, reference 3); and circuit for adjusting an amplitude and phase of the difference signal on a frequency dependent basis to form a third filtered signal (filter 5). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include center, surround, and stereo images to realize sound reproduction in such a way the reproduced sound can surround a listener (Col. 2, lines 32-37) for a higher quality audio output.

Regarding Claim 14, lida further discloses a ninth summer (8) which combines said third filtered signal with the one channel of the stereo input signal to form the first output signal; and a tenth summer (9) which combines an inverse of said third filtered signal With the other channel of the stereo input signal to form the second output signal.

Regarding Claim 17, lida further discloses a Q-filter (Fig. 6, filter 4 and 5).

Regarding Claim 20, Griesinger discloses a method for processing a stereo input signal which includes center information, matrix encoded surround information, and stereo information, the method comprising the steps of: (a) providing a center output which includes center monaural information (output 162 of figure4); (b) providing a surround output from the matrix encoded surround information which includes surround monaural information (output 160 and 164); (c) providing an expanded stereo output (output of 160 and 164); wherein the steps (a), (b), and (c) process the stereo input signal to produce first and second output signals. Griesinger does not disclose a center, surround, and stereo image. lida also discloses converting five channels down to two channels (Fig. 6) in order to produce a center (Fig. 2, SP5), surround (SP 3 and SP 4), and stereo images (SP1 and SP2). Therefore, it would have been obvious to

one of ordinary skill in the art at the time the invention was made to include center, surround, and stereo images to realize sound reproduction in such a way the reproduced sound can surround a listener (Col. 2, lines 32-37) for a higher quality audio output.

Regarding Claim 21, Griesinger further discloses the first and second output signals are respectively delivered to first and second speakers (It is inherent output signals 44 and 46 will be delivered to first and second speakers to provide an audio output).

Regarding Claim 23, lida further discloses the phantom center sound image appears to a listener of the system to be located between a pair of speakers; each virtual surround image appears to the listener to be located at a position which forms an obtuse angle with said pair of speakers; and each stereo sound image appears to be located outside the physical limits of each speaker (Fig. 2).

Regarding Claim 24, Griesinger further discloses combining one channel of the stereo input signal with the other channel of the stereo input signal to form a center combined signal which has the surround information removed (162).

Regarding Claim 25, Griesinger further discloses controllably multiplying the center combined signal (222). Note there is no limitation as to the method or means of the controllability of multiplying such a signal.

Regarding Claim 26, lida further discloses combining the center combined signal with one channel of the stereo input signal to form the first output signal (Fig. 6, adder

8); and combining the center combined signal with the other channel of the stereo input signal to form the second output signal (Fig. 6, adder 9).

Regarding claim 27, Griesinger further discloses combining (summer 126) one channel of the stereo input signal with an inverse of the other channel of the stereo input signal to form a surround combined signal which has the center information removed.

Regarding Claim 39, Griesinger discloses a system for processing a stereo input signal which includes center information, matrix encoded surround information, and stereo information, the system comprising: first circuit for providing a center output having center monaural information (Fig. 4, output of 162), which includes a first summer (162) which combines one channel of the stereo input signal with the other channel of the stereo input signal to form a center combined signal which has the surround information removed; second circuit for providing a surround output from the matrix encoded surround information having surround monaural information (output of 166 and 168), which includes a second summer (126) which combines one channel of the stereo input signal with an inverse of the other channel of the stereo input signal to form a surround combined signal which has the center information removed; and third circuit for providing an expanded stereo output (Fig. 7, output of 44 and 46), which includes a first Q-filter (236, 238, and 240) which adjusts an amplitude and phase of the surround combined signal on a frequency dependent basis to form a first filtered signal; wherein the center combined signal, the surround combined signal, and the filtered signal are used to produce first and second output signals (44 and 46).

Allowable Subject Matter

9. Claim 40 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Justin Michalski whose telephone number is (703)305-5598. The examiner can normally be reached on M-F 7-3:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sinh Tran can be reached on (703)305-4040. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



**SINH TRAN
SUPERVISORY PATENT EXAMINER**

JIM